

In a nutshell

While Japan's economy growth has been rather stagnant the burst of the bubble of the 1990's, the growing mobile phone industry and IT sectors will likely spur a slow expansion, driven by reconstruction demand related to the Great East Japan Earthquake of 2011 and bearing in mind potential risks such as : a) the stagnation of production due to rising energy costs; b) a further slowdown in neighbouring economies, inducing a slowdown in the production of Japanese export goods, c) increased fluctuation of the yen, which would further impact Japanese exported goods and d) increased competition in ICT hardware driven by low cost producing firms from mainland Asia (South Korea, Taiwan, China, Vietnam). Japan is currently building its own regional satellite-based augmentation system – QZSS – slated for 4 satellite constellation in 2018 and a 7-satellite constellation in 2023, setting the target for centimetre-class accuracy to drive future demand in applications in road transport, agriculture, Location-based Services, Indoor navigation and disaster management.



Key opportunities



Over time QZSS is expected to fulfil the function of an SBAS with national coverage. Demand will rise for applications and hardware in aircraft landing support services and aircraft traffic safety.



Whereas leading Japanese automakers and suppliers have geared up to export eCall-compliant vehicles to the EU, growth is expected in road safety and accident prevention applications, map data provider services (combining location + navigation devices) and potentially high revenue growth in designing personalised, navigation-dependent advertisement services



Other areas of expected potential include fishing fleet monitoring and catch control, while the navigation applications in the maritime transport sector are already covered by mature Japanese industry leaders.



Early validation experiments involving QZSS have catered to automated precision farming (expected to significantly improve the efficiency of Japan's agriculture), remote sensing and monitoring of the environment.



GNSS Applications for Earthquake and Tsunami warning, landslide monitoring and emergency message management are in testing phase, driven by regional cooperation projects in Asia-Oceania under the Multi-GNSS Asia demonstration campaign.



Japan sees a growing need to develop applications supporting better maintenance of municipal infrastructure (water and sewage), including precise guidance of construction machinery, as well as developing better GIS to preserve important touristic sites,

Strengths

- ▶ Technology-driven GNSS industry, with emphasis on building excellent development infrastructure for both outdoor and indoor navigation.
- ▶ A highly educated, homogenous and wealthy end-consumer base, hungry for new, value-added applications.
- ▶ Growing future expectations to use Galileo in Japan at the private sector level may become an opportunity for niche receiver makers.

Weaknesses

- ▶ Big, attractive market with mature, highly competitive industries in concentrated sectors makes it difficult for new entrants.
- ▶ Sceptic view of foreign firms entering the Japanese market, which means that developing partnerships with Japanese companies is demanding.

GNSS industry

- ▶ The GPS-based augmented system QZSS will be Japan's top priority space project and will drive domestic demand in centimetre-class applications for receiver makers, systems integrators and solution developers ready in time for the Olympics 2020 in Tokyo.
- ▶ Japan is already spearheading R&D projects under QZSS in the Asia-Oceania markets through the Multi-GNSS Asia demonstration campaign, and expands future usage in an area covering potentially 600 million users.
- ▶ The highly competitive domestic market for receivers and applications in Electronics / IT / Automobile is dominated by export-driven developers in LBS and automobile segments, mainly catering to GPS based applications using Galileo ready-to-use hardware.
- ▶ Recognised international players have some penetration (U-Blox, STMicroelectronics) with a potential for niche application developers to engage locally. R&D cooperation with foreign players who can bring complementary technology/know-how is also welcome.

Most relevant GNSS actors

Institutions				
				
Chipsets/Receivers				
				
Applications/System Integrators/Solution Providers				
				
				

Contribution to Multi - GNSS

System	QZSS
Space Segment	3 HEO satellites (Approx. 32.000 - 40.000km)
User segment	6 signals (L1-C/A, L1C, L2C, L5, L1-SAIF, LEX). QZSS can send short emergency warnings.
Position accuracy	Sub-meter
Current Status	Mitchibiki launched in 2010. Plans for a 4 satellite constellation in 2018 and a 7-satellite constellation in 2023
Japan (JAXA) is leading the Multi-GNSS demonstration campaign in Asia-Oceania (MGA)	



Japan

GNSS.asia partner: EU-Japan Centre for Industrial Cooperation

Next event: GNSS.asia Seminar at the Satellite Positioning Research and Application Centre (SPAC) Forum in Tokyo, 14 July 2016.

For more information on the ongoing activities of GNSS.asia, specific queries concerning the GNSS markets and matchmaking opportunities please contact Mr Fabrizio Mura / Ms Yoko Kadoya at gnssasia@eu-japan.gr.jp or visit <http://japan.gnss.asia/home-japan>

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